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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

3

Applicant's or agent's file reference P 53974		FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP00/04817	International filing date (day/month/year) 26/05/2000	Priority date (day/month/year) 31/08/1999	
International Patent Classification (IPC) or national classification and IPC A61F2/00			
Applicant ETHICON GmbH			


1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 01/03/2001	Date of completion of this report 05.12.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Bichlmayer, K-P Telephone No. +49 89 2399 2977



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/04817

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-13 as originally filed

Claims, No.:

1-11 as received on 18/10/2001 with letter of 17/10/2001

Drawings, sheets:

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/04817

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

Ad section V:

- 1) Reference is made to the following documents:

D1: EP,A,0 797 962

D2: FR,A,2 769 825

- 2) D1 discloses a reinforced area implant comprising a net-type basic structure having a pore size in the range of 1.5 mm to 4.0 mm and being stiffened by a synthetic resorbable material, such as yarns or films or coating waxes. D2 also describes a reinforced areal implant comprising a net-type basic structure (5) having a pore size in the range of 1.5 mm and further comprising at least two strengthening elements (4).

The subject-matter of the independent claim 1 is distinguished from D2 in that said strengthening elements are textile elements having specific bending resistance and a pore size in the range of 5 mm to 30 mm. The problem to be solved can be considered as providing for an areal implant which offers a good fit to anatomical conditions and is easily to be handled.

Since none of the available prior art documents discloses or suggests the distinguishing features, the independent claim 1 and the claims depending therefrom meet the requirements of Art. 33(2) to (4) PCT.

Ad section VII:

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.

REPLACED BY
ART 34 AMDT

- 14 -

Claims

1. Reinforced areal implant, comprising
 - a net-type basic structure having a pore size in the range 1.5 mm to 4.0 mm and
 - textile strengthening elements whose bending resistance, measured in a three-point flexibility test at a support length of 20 mm, is in the range 0.015 N/mm to 0.4 N/mm.
2. Implant according to claim 1, characterized in that the strengthening elements form a net-type strengthening structure with a pore size in the range 5 mm to 30 mm, said pore size being preferably a multiple of the pore size of the basic structure.
3. Implant according to claim 1 or 2, characterized in that the basic structure comprises knitware.
4. Implant according to claim 3, characterized in that the strengthening elements are laid or knitted into the basic structure.
5. Implant according to one of claims 1 to 4, characterized in that the basic structure comprises non-absorbable material or very slowly absorbable material that retains at least 50% of its initial tear-strength after 180 days in-vivo.

6. Implant according to claim 5, characterized in that the basic structure comprises multi-filament yarn made of polypropylene.
7. Implant according to one of claims 1 to 6, characterized in that the basic structure comprises absorbable multi-filament yarn.
8. Implant according to one of claims 1 to 7, characterized in that the basic structure has at least one of the components selected from the following group: yarn of poly-p-dioxanone, yarn of a copolymer of L-lactide and glycolide in the ratio 10:90, yarn of a copolymer of L-lactide and glycolide in the ratio 95:5, yarn of a copolymer of L-lactide and glycolide in a different ratio.
9. Implant according to one of claims 1 to 8, characterized in that the strengthening elements comprise at least one of the components selected from the following group: pure mono-filaments, twisted mono-filaments, twisted multi-filament yarns, composite multi-filament yarns.
10. Implant according to claim 9, characterized in that the strengthening elements comprise at least one of the components selected from the following group: mono-filaments of polypropylene, multi-filament yarns of polypropylene, mono-filaments of poly-p-dioxanone, multi-filament yarns of

a copolymer of L-lactide and glycolide in the ratio 10:90, yarns of poly-p-dioxanone.

11. Implant according to one of claims 1 to 10, characterized in that at least part of the strengthening elements has a color different from that of the basic structure.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P 53974	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 00/04817	International filing date (day/month/year) 26/05/2000	(Earliest) Priority Date (day/month/year) 31/08/1999
Applicant ETHICON GmbH		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PC 00/04817

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61F2/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 797 962 A (ETHICON GMBH) 1 October 1997 (1997-10-01) page 3, line 56 -page 6, line 12; figures 1-5 page 8, line 25 - last line; figures 10,11 ---	1
A	FR 2 769 825 A (COGENT SARL) 23 April 1999 (1999-04-23) page 5, line 34 -page 7, line 34; figure 1 ---	1
A	WO 96 03091 A (NOTARAS MITCHELL JAMES) 8 February 1996 (1996-02-08) page 3, line 28 -page 5, line 22; figures 1,2 -----	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
 "&" document member of the same patent family

Date of the actual completion of the international search

24 August 2000

Date of mailing of the international search report

31/08/2000

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Authorized officer

Levert, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PC 00/04817

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0797962	A	01-10-1997	DE 19613730 A	02-10-1997
			AU 704334 B	22-04-1999
			AU 1648597 A	02-10-1997
			BR 9701466 A	10-11-1998
			CA 2200801 A	26-09-1997
			JP 10024054 A	27-01-1998
			ZA 9702563 A	25-09-1998
FR 2769825	A	23-04-1999	AU 9453998 A	10-05-1999
			EP 1024764 A	09-08-2000
			WO 9920204 A	29-04-1999
WO 9603091	A	08-02-1996	AU 3119495 A	22-02-1996